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APPENDIX A

Pursuant to ECF No. 1593, Oracle hereby submits the following Appendix A to its Opposition to Google's MIL, summarizing documentary and existing testimonial evidence upon which Oracle will rely at trial to prove that the revenues set forth in the Report of James Malackowski are reasonably associated with the infringement.

As set forth herein, the strategy for the Android Platform was to monetize Google's search engine advertising platform in mobile devices, and Google succeeded in that strategy. Google treated the Android ad revenue (as well as the hardware, apps and content revenue) as part of its Android business, and called it "Direct Revenue" in its strategy documents.

The revenue at issue is closely associated with the Android Platform, and the Android Platform, in turn, is technically and commercially dependent upon the infringing Java APIs.

1. The Strategy For Android Was To Monetize Advertising, Applications And Content, And The Revenue At Issue Is Closely Associated With The Android Platform.		
Evidence	Description	Date
Malackowski Corrected Report ¶¶ 219-83.	The challenged revenues are attributable to the infringement in the opinion of a highly experienced intellectual property valuation expert.	2/3/2016
Malackowski Corrected Report ¶264.	"I have also performed a regression analysis of Android 30-Day Actives to Android Ad Revenue. The analysis resulted in an R-Squared value of 99.4 percent which suggests a strong relationship between Android 30-Day Actives (i.e. the number of people who had an Android phone in service in the last 30 days) and Android Ad Revenue."	2/3/2016
TX 3211	Google 2004 10-K p. 1: "We generate revenue by delivering relevant, cost-effective online advertising" At 58: "If we are unable to attract and retain a substantial number of alternative device users to our web search services or if we are slow to develop products and technologies that are more compatible with non-PC communications devices, we will fail to capture a significant share of an increasingly important portion of the market for online services."	3/30/2005
Schmidt, Eric E. (Vol. 01) - 7:21-9:7 (8/23/2011)	Q. BY MR. BOIES: Would it be accurate to say that the model Google has for Android is to make it available for free and to make money from advertising and the value-added services that go on top of the Android platform? A. That's a component of our strategy, yes, and -- yes.	
[REDACTED]	[REDACTED]	[REDACTED]
http://usatoday30.usatoday.com/money/industries/technology/2007-05-15-google-schmidt-	"We get more users, and that gets us more advertisers. More advertisers give us more cash, more cash gets us more data centers, more data centers mean we can get engineers who want to build even bigger data centers, and do more amazing computer science. Those engineers bring in their friends to build more	5/16/2007










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qa_N.htm	amazing ad systems, and also work on great search. That cycle is very real at Google.”	
[REDACTED]	[REDACTED]	[REDACTED]
Schmidt, Eric E. (Vol. 01) - 15:13-16:11 (8/23/2011)	<p>Q. At the top of page 9, you reference a point that we were talking about earlier, where you say that “the Open Source approach means we give the software away, which is always paradoxical. People say, ‘How do you make money from that?’” Do you see that?</p> <p>A. I do.</p> <p>Q. And then you go on to answer that question, and you say: “Well, let’s start with the fact that the evidence we have is that the people who use Android search twice as much as everything else. So clearly there is more revenue associated with those searches. Another thing, of course, is that” -- “is if they are using the Android systems, the revenue that we share in the searches are shared with the operator but not with anybody else. So again, it’s more lucrative. So not only is there more searches and there’s more ads, but it’s also more lucrative. So on that basis alone, Android is hugely profitable.” Do you see that?</p> <p>A. I do.</p> <p>Q. And that represented your view at the time; correct?</p> <p>A. That’s correct.</p>	
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

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TX 951 (2010 Q3 Earnings Call Tr.)	On an earnings call with investors, Google CEO Eric Schmidt stated: p. 6-9: On an earnings call with investors, Google CEO Eric Schmidt stated: "Well let's start with the fact that the evidence we have is that the people who use Android, search twice as much as everything else. So, clearly there is more revenue associated with those searches. Other thing, of course, is if they are using Android systems, the revenue that we share and the searches are shared with the operator, but not with anybody else. So, again, it's more lucrative. So on that basis alone, Android is hugely profitable..." p. 12: "Our model is that, our operating system is free and that we're going to make money from advertising and value-added services on top of the Android platform."	10/14/2010
TX 990	Wall Street Journal: "'This can be a powerful business, a 10-plus billion-dollar business'" per year for Google, Schmidt said. He also said Google is positioning itself to earn \$10 billion or more per year in the mobile device business, thanks to its Android operating system."	7/28/2010
Schmidt, Eric E. (Vol. 01) - 27:3-27:16 (8/23/2011)	Q. In fact, that's really the purpose of my putting it in front of you, which is to ask you to what extent what is reported here is or is not accurate. And let me begin by a portion that is in the middle of it that is in quotation marks, where the following quote is attributed to you: "Trust me that revenue is large enough to pay for all of the Android activities and a whole bunch more." Do you see that? A. I do. Q. Did you say that in words or in substance to a reporter in or about August of 2010? A. It's perfectly possible that I did.	
Schmidt, Eric E. (Vol. 01) - 29:9-29:16 (8/23/2011)	Q. Okay. Let me put the question this way: Is what is attributed to you here, that Google's Android bet is paying off spectacularly, not just in terms of smartphone market share but financially,	

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	<p>something that you believed in August of 2010?</p> <p>A. Well, I believed that we make money from Android in the way that is described here, okay, from search traffic.</p>	
<p>Trial Phase I (Vol 07 (Schmidt)) - 1455:22-1456:20 (4/24/2012)</p>	<p>Q. And the more of those Google apps that are out there, the more advertising revenue Google is likely to earn. Fair?</p> <p>A. Uhm, we make our advertising from search. So it may or may not cause more advertising revenue. It depends on whether it drives search or not.</p> <p>Q. Well, you certainly expected Android to result in more search advertising revenue; did you not, sir?</p> <p>A. Yes.</p> <p>Q. And, in fact, you have concluded that it does, correct? A. Yes. Absolutely.</p> <p>Q. And, in fact, I think you -- you said that the revenue that you received as a result of the additional search revenue generated by Android paid for Android and, I think you said, and a whole bunch more. Do you recall that?</p> <p>A. Yes.</p>	
		
<p>http://allthingsd.com/20101214/d-dive-into-mobile-the-full-interview-video-of-google-androids-andy-rubin/</p>	<p>A video interview from D: Dive Into Mobile conference with Google Android head Andy Rubin. "It's full of new stuff, such as the fact that Android is profitable (exactly how profitable, Rubin declined to say)"</p>	<p>12/24/2010</p>
<p>Piper Jaffray Report, "Android likely a \$1 Billion Business Next Year for Google,"</p>	<p>"As consumer time spent on mobile devices continues to increase, we expect the [Average Revenue Per User] on mobile could eventually reach those of Google's online businesses."</p>	<p>2/8/2011</p>
		
		

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Q2 2011 Earnings Call Tr.	p. 6: “The number which Larry just shared of 550,000 Android, that and the success of smartphones and general mobile data devices around the world is acting as an accelerator for our mobile advertising efforts.”	7/14/2011
Q3 2011 Earnings Call Tr.	On an earnings call with investors, Google’s Larry Page said: p. 3-6: “The growth of Android is mindboggling too. Over 190 million devices have now been activated globally. ... We’re also seeing a huge positive revenue impacts from mobile which has drawn 2.5x in the last 12 months to a run rate of over \$2.5 billion.” Google’s Nikesh Arora said: “Larry mentioned \$2.5 billion as a run rate. Our revenue growth continues to accelerate even in mobile, driven primarily by mobile search. This growth, obviously, is drive both by the underlying expansion of Android devices and of tablets [and Google’s sales team...].” “Many advertisers have greatly increased the size and frequency of their mobile campaigns. Mobile is becoming a must-have”	10/13/2011
GOOG-00199349	Tab 1 “PnL Slide” for Android includes “Ads Revenue”	2011-2012 (spreadsheet produced in litigation summarizing P&L data)
GOOG-00132625	“Final – Legal” tab for Android P&L includes “Ad Revenues”	2011(spreadsheet produced in litigation summarizing P&L data)
2012 Q3 Earnings Call Tr.	p.2: On an earnings call with investors, Google’s Larry Page said: “This time last year, I announced that our run-rate for mobile advertising hit \$2.5 billion. . . . But now we have built up additional mobile revenue from users paying for content and apps in Google Play. . . . I can announce now our new run-rate for mobile is now over \$8 billion.”	10/18/2012

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<p><i>“Google Earnings Preview: Will Advertising Revenue Grow?”</i> Forbes, April 22, 2015. http://www.forbes.com/sites/greatspeculations/2015/04/22/google-earnings-preview-will-advertising-revenue-grow/.</p>	<p>“[t]he mobile search ads division is the second largest division for Google and makes up approximately 34% of its total value, according to our model. Google, with 90% market share, dominates the mobile search engine market. One of the key reasons for this dominance is its flagship Android OS, which has witnessed excellent adoption and penetration in the smartphone space.”</p>	4/22/2015
Trefis Analyst Report, “Google Earnings: Profits Soars as the Company Reins in Cost,” July 17, 2015.	<p>“The Google phone division makes up 10.5% of its estimated value. Considering the growth of Google’s Android platform and the growth in smartphone adoption globally, Google’s Play store is fast becoming a vital cog for Google’s growth in the coming years. Google Play is also connecting developers and content providers with more than 1 billion people on Android devices around the world. Developers are building thriving businesses in this platform, and in February, Google announced that over the past 12 months (FY 2014), it paid more than \$7 billion to developers.”</p>	7/17/2015
GOOG-00132625	Android P&L contains ad revenues.	11/4/2015
Rubin, Andrew E. (Vol. 02) - 84:17-85:4 (8/18/2011 - 30(b)(6) Topics 8, 10)	<p>Q. And how does that access translate into benefits for Google?</p> <p>THE WITNESS: Again, it’s this cascading thing that we talked about earlier, the more people that access the internet, it’s likely a couple of those will choose to come to Google. The more people that come to Google will be exposed to our services. People exposed to our services get exposed to the advertising. It goes with it.</p>	

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	Q. BY MR. HOLTZMAN: And the advertising in turn generates revenue for Google; correct? A. Yes.	
Aditya Agarwal		
Agrawal, Aditya K. (Vol. 01) - 20:8-15 (4/8/2011)	Q. Could you explain how Google's ad revenues on Android devices is large enough to pay for all of Android's activities? A. Anyone who has an Android device, if they do a Google search and they see ads as part of it, and – we make money off of adds. And those revenues is what Schmidt is pointing out. And those revenues pay for costs.	
Agrawal, Aditya K. (Vol. 01) - 24:21-25 (4/8/2011)	Q. Okay. With that modification, is that how -- one of the ways in which Android generates revenue? A. That's how we give money to our partners. That's not how we generate revenue. We generate revenue from ads shown on Google Search on Android devices.	
Agrawal, Aditya K. (Vol. 01) - 112:5-112:21 (4/8/2011)	Q. We were just looking at a Android profit and loss statement, which is Exhibit 20, and your counsel said that you would provide me a more recent example. Doesn't this indicate that there is revenue generated by Android? THE WITNESS: Generated from ads on Google Search on an Android device. Q. BY MS. RUTHERFORD: Revenue from ads and applications? A. That's right. Q. And formally revenue from the direct to the consumer product; correct? A. That's right. Q. Would you agree with the statement that Android is hugely profitable? A. Yes.	
John Gold		
Gold, Jonathan (Vol. 01) - 135:19-136:10 (12/11/2015)	Question: So to the extent any of the P&Ls that we've looked at today other than the Android P&L include revenue generated from the use of Google services on an Android device, is that revenue accounted for in the Android P&L? THE WITNESS: The -- these P&Ls that we've looked at, if the revenue is occurring on activities done on Android devices, they are occurring on -- even if it occurs on Android devices, it's actually represented in those P&Ls because that's the main product area. The only thing represented on the Android P&L are the direct revenues associated with Android being Google Play and the hardware services -- hardware sales.	

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Gold, Jonathan (Vol. 02) - 324:5-324:22 (1/29/2016)	<p>Q And in 2009, the revenue received by Google from advertising impressions generated on Android devices was \$15.7 million; is that correct?</p> <p>THE WITNESS: According to this P&L, it says "15.7" next to "ads," so that's a fair assumption.</p> <p>Q So what was the total revenue that Google earned from Android in 2009?</p> <p>THE WITNESS: Well, we made 1.1 million on the app sales, which is how we would look at it today, and then there's another 15.7 on ads, which -- the total, that's nicely put to me here, is 16.8 million.</p>
Gold, Jonathan (Vol. 02) - 329:6-329:21 (1/29/2016)	<p>Q And in 2010, the revenue received by Google from advertising impressions on Android devices was \$120.1 million; is that correct? MR. PURCELL: Object to form. Beyond the scope.</p> <p>THE WITNESS: That is what it says on this P&L.</p> <p>Q And in 2010, what was the total amount of revenue that Google earned from Android?</p> <p>THE WITNESS: The 115.2, plus the 8 million is 123.2, which is what we would consider now for our Android P&L, and then the additional 120.1 million on here, which leads to 243.4 million.</p>
Gold, Jonathan (Vol. 02) - 332:11-332:16 (1/29/2016)	<p>Q And in 2012, the revenue received by Google from sales of digital content sold through the Google market or the Google Play store on Android devices was \$105.8 million; is that correct?</p> <p>THE WITNESS: Yes, that's correct.</p>
Gold, Jonathan (Vol. 02) - 392:1-392:14 (1/29/2016)	<p>Q What does non-search ad revenue refer to with regard to Android?</p> <p>THE WITNESS: I'm not positive. I would guess things like Display and AdSense revenue that -- that we talked on the previous document.</p> <p>BY MS. LEWIS-GRUSS: Q Because Google earns Display and AdSense revenue on devices using the Android operating system, correct?</p> <p>THE WITNESS: Google earns Display and AdSense revenue on devices where AdSense and Display revenue ads occur, which includes Android.</p>
Susan Wojcicki	
Wojcicki, Susan D. (Vol. 01) - 81:19-82:4 (08/31/2011)	<p>Q. How has Google benefitted from Android?</p> <p>THE WITNESS: How has Google benefitted from Android? So I think the way we've benefitted from Android is by enabling -- enabling users to search on Android. So there's a search box that's built in that's easy to use, although it doesn't have to be Google, but a lot of -- a lot of providers decide to use Google. And also it enables, via the marketplace, for any type of developer to upload an application, including Google, and for users to find them in the application.</p>
Wojcicki, Susan D. (Vol. 01) - 91:11-91:15 (08/31/2011)	<p>Q. BY MR. REBLITZ-RICHARDSON: And why is that good for Google?</p> <p>A. When Google searches, Google starts advertising along with the searches. And Google generates its revenue through advertising.</p>

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Wojcicki, Susan D. (Vol. 01) - 137:19-138:16 (08/31/2011)	<p>Q. BY MR. REBLITZ-RICHARDSON: Correct. Do you have a personal opinion as to how much Google might earn in the future thanks to its Android operating system?</p> <p>THE WITNESS: I mean, I don't -- I don't really know what you mean by -- when you say by its Android operating system. I mean, the -- like I talked before about having an open playing field, to the extent that we have the opportunity to have users go and do searches, and they have the -- we have the opportunity to serve ads.</p> <p>I mean, if there was another -- if there was a -- if there were other operating systems, you know, it's unlikely, but it's possible that they could say, "We're not going to" -- you know, "We're only going to enable these different search providers. We're only going to enable these map providers."</p> <p>So that's what I meant by creating an open platform. And so by having something that's open, where Google can have its services, then, yes, we do generate revenue. But as long as there would -- I mean, that's why we -- I mean, Apple enables us to serve ads. That's why we generate ads on the Apple platform.</p>
Daniel Morrill	
Morrill, Daniel (Vol. 01) -135:5-135:12 (7/12/2011)	<p>Q. BY MR. MUINO: Okay. Can you elaborate on that a little bit? What monetary interest does Google have in the success of the Android platform?</p> <p>THE WITNESS: I am referring to the increased smartphone usage leads to increased internet usage leads to increased numbers of searches leads to increased ad revenue for Google.</p>
Morrill, Daniel (Vol. 01) - 135:20-136:10 (7/12/2011)	<p>Q. BY MR. MUINO: Okay. How would that work? Why would more Android-compatible devices be financially beneficial to Google?</p> <p>THE WITNESS: The -- the more -- well, it is a virtuous circle. The more compatible devices that exist -- well, it's actually, I guess I should start with users. The more users who have compatible devices in their possession, the larger the potential or perspective audience for application developers, who then increase the number of applications available to the users, increasing user interest in the platform, which makes a user more likely to purchase a smartphone, and therefore, makes it more likely that the user will purchase a device through which Google will eventually derive revenue.</p>

2. The Android Platform is Technically Dependent Upon the Infringing APIs, And The Infringing APIs Are Significant In The Successful Operation Of The Platform.

Evidence	Description	Date
Schmidt Report (2016-01-08) ¶¶78–96; Astrachan Depo. (2016-03-14) at 87:4–95:8.	Android will not work without the infringing APIs, or any of them.	1/8/2016
Trial Phase I (Vol 10 (Astrachan)) -	<p>Q: What would happen if you ripped those lines out of Android?</p> <p>A: Well, for the purposes of the Android core libraries, those are</p>	

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2212:14-18 (4/27/2012)	part of it, so they need to be there for Android to work as it's been designed.	
Kemerer Report (2016-01-08) ¶¶141-157.	The infringing Java APIs are thirty times more central to the operation of the Android platform than the APIs contributed by Google.	1/8/2016
Kemerer Report (2016-01-08) ¶¶126-140.	All top Android applications, including Google applications, are dependent upon the infringing APIs.	1/8/2016
[REDACTED]	[REDACTED]	[REDACTED]
TX 1 at 8	Java has an "Existing pool of developers and applications," "Carriers require it," and there is an "Elegant tools story."	7/26/2005
Rubin, Andrew E. (Vol. 01) - 169:3-169:11 (7/27/2011)	Q. And then some carriers require Java certification. We also saw that earlier in documents. There was a concern on the part of your team that Java certification was a gating item to gaining approval by the vendors on; correct? THE WITNESS: It could potentially be used as a gating item. It might limit our adoption or slow our adoption.	
TX 7	Email string from T. Cole to Jenifer [jaustin@google.com], A. Rubin, and LSA re Sun Meeting; Rubin to Google co-founder Page: "Android is building a Java OS [operating system] ... [and] making Java central to our solution[.]";Java is "the #1 choice for mobile development."	10/11/2005
[REDACTED]	[REDACTED]	[REDACTED]
TX 13	Email from Senior Android engineer stating the "[r]easons to shift to a primarily Java API," include that "[J]ava provides a nice safety net and faster app development and debuggability" and "[t]he nature of the cellular market is that we are *required* to have [J]ava due to carrier requirements").	1/3/2006
TX 15	Android presentation to Google executives: Java "[c]ritical" to Android "strategy."	2/5/2006
TX 22	Andy Rubin asks Google's Executive Management Group for "final approval" to work with Sun on Android. He notes that "Java dominates [the] wireless industry [with] 1B Java embedded handsets [and] 180 carrier deployments," that "[c]arriers require Java in their terminal [] specifications," and that working with Sun "dramatically accelerates [Android's] schedule." He	4/24/2006

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	proposes a co-development partnership with Sun, but points out that if a deal cannot be reached, Google will still need to “[t]ake a lesser license” from Sun.	
[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
TX 10	Tim Lindholm emails Andy Rubin to say that he has completed his review of what technical alternatives exist to Java, and the alternatives “all suck.” He concludes “that we need to negotiate a license for Java under the terms we need.”	8/6/2010

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3. The Android Platform is Commercially Dependent Upon the Infringing APIs, Because Google Had A Limited Window Of Opportunity To Launch, Because The Java APIs Gave Google Access To A Huge Existing Base Of Developers And Applications, And Because The Java APIs Gave Android Credibility With Carriers And OEMs.		
Evidence	Description	Date
	GOOGLE'S LIMITED WINDOW OF OPPORTUNITY	
Jaffe Report ¶¶ 34-37, 46-52, 132-173	Mobile phones are a platform market, platform markets are tippy and characterized by network effects, Google faced significant competition with a limited window of opportunity.	2/8/2016
GOOG-00580439 at 580441, 580444, 580463	Google strategy document considers how Google can “conquer the world’s major wireless markets simultaneously,” notes that “[w]e will lose in wireless if we do not grow faster,” and suggests making a “Google handset.”	10/2004
GOOGLE-29-00003710	Google believes “we have 8-12 months worldwide to become a dominant player.”	10/27/2004
2004 Google 10-K	“If we are unable to attract and retain a substantial number of alternative device users to our web search services or if we are slow to develop products and technologies that are more compatible with non-PC communications devices, we will fail to capture a significant share of an increasingly important portion of the market for online services.”	3/2005
Page, Larry (Vol. 01) -14:14-14:21, (08/24/2011)	Q. In 2005 was Google concerned that Microsoft and Nokia might develop closed operating systems for smartphones that would give them control over smartphones and allow them to exclude certain Google services? A. I’d say yes, but with a few qualifications. So yes, we were concerned about it. In fact, that was already happening. You know, it’s been happening as long as I can remember in the industry.	
Page, Larry (Vol. 01) - 16:20-16:25, (08/24/2011)	Q. BY MR. BOIES: In addition to always being concerned about people closing down their platforms, were you concerned in particular about Microsoft and Nokia controlling operating systems for smartphones and excluding certain Google services? A. I mean, yes. I mean, I said yes.	
Page, Larry (Vol. 01) - 75:23-76:10, (08/24/2011)	Q. And what they’re saying is that their plan is to beat Microsoft and Symbian to volume by offering an Open Source handset solution. Do you see that? A. Yes. Q. Why was that important to Google? A. Well, I think those were big competitors in the market, and, obviously, we were competing with them, so we wanted to, you know, compete with them. Q. And in order to beat Microsoft and Symbian to volume, it was desirable to come out with Android as quickly as possible, would you agree with that? A. Yes. It’s better to get the product out sooner than later.	

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Page, Larry (Vol. 01) - 77:21-78:6, (08/24/2011)	<p>Q. And you were concerned that the closed and proprietary nature of those two dominant systems might be used to exclude certain access to Google; correct?</p> <p>A. Yes. I mean, I would say it already had been used to do that for some of our applications we'd like to get to our consumers.</p> <p>Q. And Google thought that was an undesirable situation that it wanted to do something about; fair?</p> <p>A. Yeah. We -- I'd say yes. We want to -- I don't know about that particular situation, but we wanted a viable way of getting our products to consumers.</p>	
GOOGLE-26-00031238	Google commences discussions with Android Inc. because Larry Page "feel[s] we are moving too slow on this area."	3/17/2005
Rubin, Andrew E. (Vol. 01) - 44:3-44:22 (4/5/2011)	<p>Q. So let me go back to my question. Your goal was to specifically expand access to Google's services via Android?</p> <p>A. Yes.</p> <p>Q. That's "yes"? Sorry.</p> <p>A. Yes.</p> <p>Q. And which services were you talking about there?</p> <p>A. Primarily search.</p> <p>Q. Okay.</p> <p>A. You know, in the 2005 time frame, which is the date of the letter, we were primarily thinking search. Later on, we added other services. Google has other services such as Gmail, YouTube, Google Calendar, and the list goes on. So those services evolved over time.</p> <p>Q. And Android expands access to those services as well?</p> <p>A. Correct. There are mobile versions of each one of those services.</p>	
Rubin, Andrew E. (Vol. 02) - 74:22-75:18 (8/18/2011 - 30(b)(6) Topics 8, 10)	<p>Q. And how does distribution [of Google services through Android] translate into a benefit to Google?</p> <p>A. The more people that use Google services, the more opportunity Google has to get new customers.</p> <p>Q. And why does getting new customers matter to Google?</p> <p>A. Because Google can advertise to them.</p> <p>Q. And why does advertising to those customers matter to Google?</p> <p>A. Obviously, there's a -- there's a -- that's Google's core business.</p> <p>Q. And that core business generates revenue for Google; correct?</p> <p>A. Yes.</p> <p>Q. And that's at least one of the reasons that that core business is important to Google; correct?</p> <p>A. That it generates revenue?</p>	

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	<p>Q. Yes.</p> <p>A. You're asking me if making money is important to Google?</p> <p>Q. That's what I'm asking you.</p> <p>A. Yes.</p>	
TX 1004	Android Acquisition Agreement Milestone 1: "Buyer's mobile telephone handset manufacturing partner(s) shall have shipped a minimum of one functional mobile telephone using an operating system developed by the Company (a "Company Enabled Phone"), and Buyer shall have entered into a definitive agreement with at least one wireless carrier (which carrier must provide service to a minimum of 15 million customers) providing for the service contract related to the Company Enabled Phone. The Company Enabled Phone may not be a mere prototype but rather shall be a functional mobile telephone that, if replicated, would be suitable for use by a large number of consumer end users."	6/30/2005
GOOGLE-67-00040897	GPS Project Android: "Plan: Beat Microsoft and Symbian to volume by offering an Open Source handset solution"	8/2005
Trial Phase I (Vol 07 (Schmidt)) - 1457:17-1458:24 (4/24/2012)	<p>Q. Let me ask you to turn now, to page 24 of this presentation. It's page 24 of the exhibit. It's the last -- essentially, last page of the presentation. Where it says: "Plan: Beat Microsoft and Symbian to volume by offering an open source handset solution." Do you see that?</p> <p>A. I do.</p> <p>Q. And that was a goal that Google had, correct?</p> <p>A. Yes.</p> <p>Q. And one of the reasons that you were interested in having Android proceed as fast as it could was you wanted to beat Microsoft and Symbian to volume, correct?</p> <p>A. Yes.</p> <p>Q. And by beating Microsoft and Symbian to volume, you mean getting your handset out there with a lot of users before they had their handsets out there with a lot of user; is that fair?</p> <p>A. Yes. Volume means more users, so serving more customers.</p> <p>Q. And going back to the question of search, your analysis or the analysis of Google was that people who use Android search more than people who do not use Android, correct?</p> <p>A. Yes. The vast majority of Google's revenue at the time and today comes from search revenue. And so the primary reason to have something like Android is that people will do more searches, and then we'll get more money as a result. And that's how we, essentially, pay for the strategy of Android.</p> <p>Q. And not only are there more searches and there are more ads, but those ads are more lucrative because you share less of the revenue; is that fair?</p> <p>A. Uhm, it depends on who our partner is, but in principle we could end up with a greater share of the revenue on each handset,</p>	

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	as well. Q. And, indeed, that was what you projected, correct, sir? A. That was certainly our goal.	
TX 8	Rich Miner and Andy Rubin, Android co-founders, report to Google CEO Eric Schmidt that “if an open platform is not introduced in the next few years[,] then Microsoft will own the programmable handset platform[.]”	10/12/2005
GOOGLE-01-00056184 – 187 at 187; GOOGLE-22-00171914 – 951 at 923.	All of Google’s top executives agreed that one of their chief objectives for Android was to ensure control over a platform and to avoid the significant threat of such exclusion.	10/25/2005
Google 2005 10-K (TX 3215)	p. 32: “More individuals are using non-PC devices to access the Internet, and versions of our web search technology developed for these devices may not be widely adopted by users of these devices. The number of people who access the Internet through devices other than personal computers, including mobile telephones, hand-held calendaring and email assistants, and television set-top devices, has increased dramatically in the past few years. The lower resolution, functionality and memory associated with alternative devices make the use of our products and services through such devices difficult. If we are unable to attract and retain a substantial number of alternative device users to our web search services or if we are slow to develop products and technologies that are more compatible with non-PC communications devices, we will fail to capture a significant share of an increasingly important portion of the market for online services.”	12/31/2005
GOOGLE-12-00003871	Open Handset Alliance presentation; “why to the deal: critical to our open source handset strategy; dramatically accelerates our schedule; form an industry alliance to block MSFT; create value for wireless stakeholders”	1/31/2006
Meeker, Mary et al. Global Internet Trends, Morgan Stanley. (April 7, 2006)	Morgan Stanley presentation discusses “cusp of a whole new era of mobile computing”	4/7/2006
Rubin, Andrew E. (Vol. 01) - 179:21-180:12 (7/27/2011)	Q. The deadline you were talking about, the December 2006 deadline, you said, “I was under incredible schedule pressure.” A. Yep. Q. What did you mean by that? A. Well, look, I mean, you have a window of opportunity in smartphones. I had competitors all over the place. When I started the company, Microsoft was my competitor. You know, there was Symbian in there as well, and, you know, all sorts of Linux initiatives. You have to ship as soon as feasibly possible. I mean, you go to extraordinary lengths to ship sooner, because it’s a very dynamic market. And it could shift directions at any time.	

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	Right. So my job as, you know, the architect of this business concept was to just do everything that I possibly could to get my solution to the market in the shortest time possible.	
Google 2006 10-K	p. 28: More individuals are using non-PC devices to access the internet, and versions of our web search technology developed for these devices may not be widely adopted by users of these devices. The number of people who access the internet through devices other than personal computers, including mobile telephones, hand-held calendaring and email assistants, and television set-top devices, has increased dramatically in the past few years. The lower resolution, functionality and memory associated with alternative devices make the use of our products and services through such devices more difficult. If we are unable to attract and retain a substantial number of alternative device users to our web search services or if we are slow to develop products and technologies that are more compatible with non-PC communications devices, we will fail to capture a significant share of an increasingly important portion of the market for online services.	12/31/2006
GOOG-00360213 at 217	Google Strategy Document: Windows Mobile “devices bundled with Live Search, Maps and other services are clear threat to our global business, and have high adoption in power user segments.”	2008
TX 370	Internal Google document entitled "Mobile Strategy Summit - Notes," “if we miss the ‘mobile window,’ we’ll be out of business in 10 years”; “search product and the pods will open doors and provide access to huge advertiser base”	11/4/2010
	COMMERCIAL NECESSITY AND CREDIBILITY FROM JAVA	
GOOGLE-26-00025071	“The carriers are the customers of cell phones – not the end users.”	4/19/2005
GOOGLE-01-00017154	Android must use Java because “carriers require it.”	7/24/2005
TX 1 at 8	Java has an “Existing pool of developers and applications,” “Carriers require it,” and there is an “Elegant tools story.”)	7/26/2005
TX 7	Email string from T. Cole to Jenifer [jaustin@google.com], A. Rubin, and LSA re Sun Meeting; Rubin to Google co-founder Page: “Android is building a Java OS [operating system] ... [and] making Java central to our solution[.]”; Java is “the #1 choice for mobile development.”	10/11/2005
TX 8	“[I]t is key to get strong carrier support. While our technical leadership in search should be a huge advantage, it is considered a threat by many of the carriers. The quickest way to defuse this issue is to accelerate the advertising marketplace concept with contractual partnerships with carriers based on rev-share. Demonstrate to them the ARPU upside for our top 3 applications (search, gmail, maps/local). Model their bandwidth costs and provide to them a spreadsheet that shows them net upside. Our biggest selling point will be to show them how our advertiser network will enable them to increase data ARPU without cannibalizing existing voice revenue. The best way to do this is	10/12/2005

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	increase subscriber revenue through 3rd party advertisers. None of the search competitors (especially startups) have the story that Google has.”	
TX 158 at -584	2006 Google Presentation: “[s]upporting Java is the best way to harness developers. Fact: Linux fragmentation threatens value. Tools and new app frameworks are biggest hurdles. 6M Java developers worldwide. Tools and documentation exist to support app development without the need to create a large developer services organization. There exist many legacy Java applications. The wireless industry has adopted Java, and the carriers require its support. Strategy: Leverage Java for its existing base of developers.”	2006
TX 13	Email from Senior Android engineer stating the “[r]easons to shift to a primarily Java API,” include that “[J]ava provides a nice safety net and faster app development and debuggability” and “[t]he nature of the cellular market is that we are *required* to have [J]ava due to carrier requirements”).	1/3/2006
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
TX 15	Android presentation to Google executives: Java “[c]ritical” to Android “strategy.”	2/5/2006
TX 11	Email from R. Miner to S. Horowitz re Fwd: Sun doc, with attachment Android “Monetization Proposal”: Java is “a key component of the [Android] platform.”	3/7/2006
[REDACTED]	[REDACTED]	[REDACTED]
TX 21	Android engineer Bornstein to Rubin: ““If we play our cards right, we can also leverage not only existing developers, but applications as well”	4/13/2006
TX 22	Andy Rubin asks Google’s Executive Management Group for “final approval” to work with Sun on Android. He notes that “Java dominates [the] wireless industry [with] 1B Java embedded handsets [and] 180 carrier deployments,” that “[c]arriers require Java in their terminal [] specifications,” and that working with Sun “dramatically accelerates [Android’s] schedule.” He proposes a co-development partnership with Sun, but points out that if a deal cannot be reached, Google will still need to “[t]ake a lesser license” from Sun.	4/24/2006
[REDACTED]	[REDACTED]	[REDACTED]
TX 23	“Manifesto” email from Michael Fleming to Brian Swetland and Andy McFadden: “if the device is not fast and stable we	8/16/2006

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	FAIL...”; “writing great apps must be simple;” discusses 4 customers: OEMs, carriers, end users, application developers, in that order of priority. “we cant get out the gates without [OEMs and carriers]; “write as much in Java as possible;” “building a java based system: that decision is final.”	
TX 158	Presentation titled “Android Open Handset Platform” to China Mobile touts advantages of Java based platform.	9/28/2006
TX 387	Presentation to T-Mobile titled “The Google Phone” states: “Supporting Java is the best way to harness developers.”	11/9/2006
[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
TX 238	Email chain from Eric Chu to Joerg Pleumann re Android article; using Java “enable[s] all [those] Java developers to quickly leverage their skills to build great Android apps.”	6/21/2007
[REDACTED]	[REDACTED]	[REDACTED]

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[REDACTED]	[REDACTED]	
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
Rubin, Andrew E. (Vol. 01) - 288:22-289:3 (7/27/2011)	<p>Q. It has been important to your Android strategy that developers be able to rely on their existing knowledge of Java API's to program applications to execute on Android; correct?</p> <p>A. Having developers that have been trained in the Java programming language accelerated our third party developer ecosystem.</p>	
Rubin, Andrew E. (Vol. 01) - 289:4-289:20 (7/27/2011)	<p>Q. And today, going forward, how important is that to you?</p> <p>THE WITNESS: It's -- it's hard to gauge. At this point, we have a vibrant third party developer ecosystem. We have people making money on Android. The willingness to invest is probably much more than it is -- much more now than it was back then. I mean, when we first launched, we had, like, 0 market penetration, 0 percent; right? So getting a developer to come on the platform, we wanted to do it in a frictionless way. Now, developers are making money. Getting them to do a little bit of additional work will guarantee that they continue to make money rather than going to 0. So I think the dynamics have changed quite a bit because of our success.</p>	
Daniel Bornstein		
Bornstein, Daniel (Vol. 01) - 110:11-110:18 (5/16/2011)	<p>Q. So it made sense to provide a certain familiar set of Java APIs for developers who would create Android applications?</p> <p>A. Well, it made -- it made sense to provide implementations of a set of classes with particular familiar names and methods with particular familiar names along with, you know, to the extent that we could, familiar behavior.</p>	
Anwar Ghuloum		
Ghuloum, Anwar (Vol. 01) - 16:17-18:2	Q. Is it Google's view that the core -- the APIs in the core libraries are known to Java programmers?	

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(12/9/2015)	<p>THE WITNESS: Yes.</p> <p>BY MR. RAMSEY: Q And is it Google's position that the APIs in the Java core libraries are recognized by programmers wanting to -- to use that platform?</p> <p>THE WITNESS: Yeah, it's --</p> <p>BY MR. RAMSEY: Q Well, so let me ask it this way --</p> <p>A Yeah.</p> <p>Q -- did -- I mean, is it Google's position that Java programmers who are using the Java platform would recognize, if they have any experience, the -- the -- the core -- the APIs in the core libraries?</p> <p>A Yeah, for the most part. Not all of them but certainly some subset.</p> <p>Q Do you think there's any value to developers in being able to recognize the APIs in the core libraries?</p> <p>A Yes, although it depends on what you mean by "recognize." So if -- if -- I guess, the question is -- actually could you clarify that? What do you mean by "recognize" specifically?</p> <p>Q So by "recognize," I mean the developers using the Java development platform to write a program come to know what the core library APIs are.</p> <p>A Uh-huh.</p> <p>Q And that has value to them as they develop programs?</p> <p>A Yeah. Familiarity, I think, would be a value.</p>	
Ghuloum, Anwar (Vol. 01) - 18:19-18:25 (12/9/2015)	<p>Q Are you saying that familiarity with the core APIs allows programmers to more readily develop programs in the Java platform?</p> <p>A Yeah.</p> <p>THE WITNESS: Sorry. Probably, yeah, I think that's true.</p>	
Ghuloum, Anwar (Vol. 01) - 26:13-26:17 (12/9/2015)	<p>Q But, in general, you agree once the developers have come to know the Java APIs, they're -- they're more quickly able to develop applications using that platform?</p> <p>A Yeah.</p>	
Ghuloum, Anwar (Vol. 01) - 117:15-117:21 (12/9/2015)	<p>Q Do you believe that developers who are using the Java APIs become familiar with, for example, what method declarations -- how they are stated?</p> <p>A Of those Java APIs?</p> <p>Q Correct.</p> <p>A Yes.</p>	
Ghuloum, Anwar (Vol. 01) - 149:15-150:12 (12/9/2015)	<p>Q Isn't it true that one -- one reason that users are attracted to a device platform is the number of applications available on the platform?</p> <p>THE WITNESS: I believe that is a factor, yes.</p>	

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	<p>BY MR. RAMSEY: Q And so the facility and speed with which a platform like Android can attract application developers, in turn, feeds the number of users?</p> <p>THE WITNESS: I -- I think it can. I think, though, there are other things that -- well, you're asking me specifically about whether application availability and the speed of application availability on the platform attracts users?</p> <p>BY MR. RAMSEY: Q Correct.</p> <p>A Yeah, I believe it does have an influence on -- on this.</p>	
Urs Holzle		
Holzle, Urs (Vol. 01) - 293:18-297:1 (11/24/2015)	<p>Q So -- and wouldn't you think that, as a person who was on the executive management group with expertise in Java virtual machines, that you would have been called upon as one of the people to perform due diligence on Android?</p> <p>THE WITNESS: No, actually, not at all because I don't believe that was a big part of the acquisition. The acquisition was really motivated by both Larry and Sergey's insight that basically at the time of the acquisition mobile phones were not programmable. I'm quoted somewhere in the press because I remember giving that email -- that interview maybe a year before that mobile phones are not programmable, like the Nokia phones, because at the time we had a very simple Google search app that basically gave you a screen and led you to a query and get back results, and we literally had 147 versions of this because every single phone back then, mostly Nokia, had a different way of doing things, and so even though everything was Java, it was literally -- even the same phone had different -- you know, different APIs depending on the -- on the carrier that carried the phone. And so we had no common platform, and it was impossible to really build any applications on it. And so Larry and Sergey recognized early on that if someone writes a phone that actually can be a platform for real software development, then it's important for that platform to be open because if -- if it was not, then access to search would possibly be blocked by the owner of the platform, and we had lived through that on a desktop with Microsoft, who was not favorably disposed to make it to easy to use Google from the Microsoft browser. And so they saw that, well, at some point someone is going to do an operating system for mobile phones that actually is usable that actually is a platform that you can write real applications for, and that platform would be open, right, because if it's closed -- if it's Microsoft, again, for example, then we're going to be toast. You know, it's not good if the platform is controlled by someone else. And that was three years or so before smartphones actually happened. So at the time it was, you know, pretty forward-looking because it wasn't actually possible to do it at the time. The hardware just wasn't fast enough. But, you know, two years later the iPhone came out, and a year or so after that Android came out. And so that's how it happened. Java was -- I'm sure</p>	

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	was not mentioned in the discussion at all just because it wasn't about Java. It was about a mobile operating system and a user experience that allows more ambitious applications to exist.	
Richard Miner		
Miner, Richard (Vol. 01) - 115:16-116:5 (5/26/2011)	<p>Q. Why, if at all, was it important to provide powerful, yet simple, familiar, development platforms?</p> <p>A. You're evangelizing to developers. That's part of the intent. You want to appeal to developers. They like programming and things that are familiar. So using the Java programming language and programming tools that they might be familiar with, the programming of the Java programming language is important and having it be powerful and simple, you want them to think that with writing small lines of code and putting in small effort they get great results.</p>	
Miner, Richard (Vol. 01) - 117:12-117:17 (5/26/2011)	<p>Q. What I'm asking is why was adoption by developers important?</p> <p>A. Again, because it was one of -- in terms of getting the momentum for the adoption of the entire platform, just then you want to have adoption by developers.</p>	

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Finally, while Oracle disputes the relevance of OpenJDK on numerous grounds as described in its various briefs, even if relevant it is apparent that Open JDK was an unsuitable alternative because Google in fact repeatedly rejected the OpenJDK license when developing and releasing Android.

4. Google Actually Rejected OpenJDK As Unsuitable For Android.		
Evidence	Description	Date
TX 154	After learning about the release of OpenJDK, Andy Rubin explains that the “GPL license (sun’s license) doesn;t [sic] work for us.”	11/12/2006
[REDACTED]	[REDACTED]	[REDACTED]
http://android-developers.blogspot.com/2007/11/android-first-week.html	<p>“A couple of good articles on the web for your reading pleasure...</p> <ul style="list-style-type: none"> Why Google chose the Apache Software License [sic] over GPLv2 for Android” 	11/2007
http://arstechnica.com/uncategorized/2007/11/why-google-chose-the-apache-software-license-over-gplv2/	A technical article, endorsed by Google, explains that “distributing Android under a copyleft license [like the GPL] could potentially limit the evolution of the mobile software ecosystem by discouraging commercial development on top of the platform.”	11/6/2007
http://www.cnet.com/news/google-carves-an-android-path-through-open-source-world	In an interview to CNET, Andy Rubin describes why Google chose not to release Android under GPLv2: “The thing that worries me about GPL is this: suppose Samsung wants to build a phone that's different in features and functionality than (one from) LG. If everything on the phone was GPL, any applications or user interface enhancements that Samsung did, they would have to contribute back. At the application layer, GPL doesn't work.”	5/22/2008
Dr. Kearl March 21, 2016 Corrected Report	57: 16-22: “Dr. Leonard comes up with this very low estimate in the JDK case of \$85,000. And my observation was simply, if Google could have, at any point in the last nine years, resolved this issue by spending \$100,000, it probably would have done so. And that it didn't do so suggests that this is probably not a credible estimate.”	3/21/2016